REMARKS

Applicant respectfully requests reconsideration and allowance of claims 1-19 that are pending in the above-identified patent application. Claims 10-19 stand rejected. Claims 1-9 stand withdrawn. By the forgoing amendment, Applicant has amended claim 10. No new matter is added by the amendment. In view of the following discussion, Applicant submits that all pending claims are in condition for allowance.

Claim Rejections – 35 U.S.C. §103:

At numbered parts 1-14 starting on page 3 of the Office Action, the Examiner has rejected claims 10-15 and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Naatz et al. (U.S. Pat. Pub. No. 2002/0068017) (hereinafter referred to as "Naatz") in view of Yang et al. (U.S. Pat. Pub. No. 2003/0183801) (hereinafter referred to as "Yang"). Applicant respectfully traverses the Examiner's rejection.

Amended independent claim 10 recites "a sample loop with a defined volume is arranged in the closed reaction circuit, which for conveying the defined volume of the gas flow of the reaction circuit is operable to be switched into the closed measurement circuit from the closed reaction circuit, and the sample loop is operable to be switched into the closed reaction circuit from the closed measurement circuit." (Emphasis added.)

The Examiner alleges that the plasma cell 10 of the Naatz device is equivalent to the measurement cell and the sample loop of the present invention in the instant application. The Examiner alleges that the liquid loop of the Naatz device is equivalent to the reaction loop. Applicant respectfully disagrees with the Examiner.

From FIG. 5 and at least paragraphs [0032-0038], Naatz discloses an instrument for measuring the total organic carbon in an aqueous or gaseous sample by admitting the sample together with an oxygen containing gas to a plasma cell 10. A possible sample is ethanol which may be contained in one's breath. In order to fill the plasma cell 10 with the oxygen containing gas, to generate plasma, a gas flow from a gas supply 40 is established. A continuous gas flow through the passage can be maintained by supplying the oxygen containing gas. Alternatively, the gas present in the cell can be circulated in a

gas loop 49. Indeed, the plasma cell 10 has an inlet port 12 and an outlet port 14 so that the oxygen containing gas can pass through the cell repeatedly.

After establishing of the oxidant gas stream, and producing of the plasma, a sample is introduced into the plasma cell 10 for oxidation. For example, an aqueous or gaseous sample can be drawn from a flask 60 through the sample loop 50 and into the plasma cell 10 via a liquid loop 55. From paragraph [0033], Naatz states that "[t]he amount of oxygen trapped inside the volume of the plasma cell [10] and associated [gas] loop [49], i.e., after closing of valve 47, is sufficient to completely oxidize the full amount of carbon present in the sample." (Emphasis added.) The CO_2 generated is measured at the outlet of the plasma cell 10 by a detector 48 of the gas loop 49. The oxidant gas, including increasing quantities of CO_2, can be circulated through the detector 48 and the cell 10 until an unchanging value for the CO_2 content indicates that oxidation is complete.

The Naatz device cannot, and does not, disclose or suggest a closed reaction circuit and a closed measurement circuit, wherein a sample loop may be switched from the closed reaction circuit to the closed measurement circuit and from the measurement circuit to the reaction circuit as presently claimed in amended independent claim 10 of the instant application. For the sake of argument, assuming that the plasma reactor cell 10 of the Naatz device is the measurement cell (which Applicant submits is incorrect), ethanol, as a sample example, is transferred to the plasma reactor cell 10. If the top gas loop 49 (the alleged measurement circuit), which includes the plasma reactor cell 10, and the liquid loop 55 (the alleged reaction circuit) remain closed as presently claimed for the measurement circuit and reaction circuit in amended independent claim 10 of the instant application, a reaction cannot, and does not, take place in the plasma reactor cell 10. From paragraph [0036], the Naatz reference states that "after establishment of the proper flow of the oxidant gas stream, and establishment of the plasma, an aqueous or gaseous sample of known volume is introduced into the cell 10 for oxidation." (Emphasis added.) Indeed, the reaction only occurs when the bottom liquid loop 55 is opened to the upper gas loop 49 to let the aqueous or gaseous sample into the cell 10 from the flask 60 via the sample loop 50 of the Naatz device. As such, the Naatz device requires that both gas loop 49 and liquid loop 55 are open and are co-dependent. For the sake of argument, assuming that the entire circuit of the combined gas loop 49 and the liquid loop 55 is closed (which Applicant submits is improper), Naatz does not disclose or suggest a closed measurement circuit and a closed reaction circuit as presently claimed in amended independent

claim 10 of the instant application. Indeed, because the gas loop 49 and liquid loop 55 must both be open and co-dependent to create a reaction as taught by Naatz, the plasma reactor cell 10 (the alleged sample loop) cannot, and does not, switch back and forth between a closed measurement circuit and a closed reactor circuit as presently recited for the sample loop in amended independent claim 10 of the instant application. As such, the device of Naatz is different in construction and mode of operation from the present invention as presently claimed in amended independent claim 10 of the instant application.

As additional distinctions between the Naatz device and the present invention as presently claimed in amended independent claim 10 of the instant application, the Examiner concedes at numbered part 5 on page 4 of the Office Action that Naatz fails to disclose the sensor or the plasma cell to receive an OSI-material. Moreover, gas loop 49 of the Naatz device cannot, and does not, measure the CO_2 of a defined gas volume transferred from the closed reaction loop to the closed measurement loop. Indeed, the Naatz device instead measures the product of a reaction between the recirculated ethanol and the reaction gas.

The teachings of Yang do not cure the aforementioned deficiencies of Naatz. Yang discloses a method of producing an oxygen scavenging composition. According to the examples on page 6 of Yang, the scavenger samples are measured by a MOCON Model 450 Headspace Analyzer. However, Yang fails to disclose or suggest how to determine the oxygen scavenging in another way or with another instrument. As such, it would not have been obvious to those skilled in the art at the time the invention was made to place the OSI-material in the cell 10 of the Naatz device to determine an amount of oxygen that is subjected to the cell, and to determine how effective the OSI-material is in preserving and maintaining the shelf-life of a packaged product. Therefore, the assertion of combining the teaching of Naatz and Yang is made only with the benefit of the teachings of the instant application. According to MPEP §2142, "impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." (Emphasis added.) When reviewing prior art, the Examiner must take "into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure." *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971) (Emphasis added.). However, as aforementioned, the Examiner is in fact looking to the disclosure of the present invention for facts rather than to the prior art because the prior art does not

contain evidence to support the Examiner's allegation to combine the references.

Moreover, Applicant submits that modifying the Naatz device to include an oxygen scavenger for "[maintaining] and [enhancing] the quality and shelf life of the packaged product… [by promoting] the interception and reaction with oxygen" changes the principle of operation of the Naatz device, and is, therefore, improper. According to MPEP §2143.01, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." (Emphasis added.) For the sake of argument, if one skilled in the art modified the Naatz device with the teachings of Yang to include an OSI-material in the Naatz device (which Applicant maintains is improper), such a modification would change the principle of operation, i.e., generating plasma by including gas containing oxygen sufficient to completely oxidize the *full* amount of organic molecules present in the sample to CO_2 and oxidizing the aqueous or gaseous sample subsequently introduced into the cell 10, of the Naatz device being modified. Indeed, if one skilled in the art placed an oxygen scavenger as taught by Yang inside the cell 10 of the Naatz device, the oxygen scavenger would intercept and react with the oxygen as taught by Yang, thereby preventing the oxygen from reacting with the organic molecules of the Naatz device to generate the plasma and preventing oxidation of the aqueous or gaseous sample introduced into the cell 10 as required and taught by the teachings of Naatz. As such, Applicant submits that such a modification is, therefore, improper.

In contrast, the present invention as claimed in amended independent claim 10 of the instant application recites a device for characterising OSI-material in which the material is subjected to a gas mixture containing oxygen. From paragraph [0007], the specification of the instant application as originally filed states that "OSI-materials, specifically O_2-scavengers, O_2-indicators or O_2-scavenger/ O_2-indicator systems are applied in the foodstuff industry, pharmaceutics industry, electronic industry, chemical industry, and with other applications." For these purposes, the respective OSI-material has to be characterized, and the basis for this characterization is the oxygen concentration in view of the time component. For example, FIG. 4 of the instant application shows the oxygen uptake in dependence of time as characterizing an O_2-scavenger or the change of colour dependent on oxygen concentration and time.

As presently claimed in amended independent claim 10 of the instant application, the present invention comprises a closed reaction circuit and a closed measurement circuit, wherein the sample loop (which is different than the sample loop 50 of the Naatz device) is operable to be switched from the closed reaction circuit to the closed measurement circuit and from the closed measurement circuit to the closed reaction circuit. By way of example of at least one embodiment of the present invention shown in FIGS. 1-3, a switch-over branch 3 and a sample loop 4 are operable to be switched in each case between the closed reaction circuit 1 and the closed measurement circuit 2. Indeed, the switch-over branch 3 and the sample loop 4 are either part of the closed reaction circuit 1 or part of the closed measurement circuit 2.

The reaction circuit 1 and the measurement circuit 2 are closed and independent, and the sample loop 4 and the switch-over branch 3 are operable to switch between the two circuits. From paragraph [0023] of the instant application as originally filed, "[t]he reaction circuit 1 forms a closed reaction circulation and consists of a pump 5, of a…measurement cell 6…, of the sample loop 4 or the switch-over circuit 3, [and valves 7]." (Emphasis added.) In at least one embodiment of the present invention, a gas supply conduit 14 is integrated in the reaction circuit 1 to provide a gas flow through the measurement cell 6 for reaction between the OSI-material and the gas. The OSI-material is introduced into the measurement cell 6. The complete reaction circuit 1 is flushed with an O_2/N_2-gas flow which is supplied via a valve 8. The gas is pumped through the measurement cell 6 and the sample loop 4.

From paragraph [0024] of the instant application as originally filed, "[t]he measurement circuit 2 in the shown embodiment example is likewise designed as a closed circuit [independent from the reaction circuit]…The measurement circuit [2] [in at least one embodiment] comprises a 4-way valve 9 for the removal, supply and the switching-through of a gas flow, a pump 10, an oxygen-sensitive sensor arrangement 11…, an evaluation unit 12…, and a humidification unit 13. As already mentioned above, the 6-way valve 7 which may be switched between the sample loop 4 and the switch-over branch 3, is also a constituent of the measurement circuit 2." (Emphasis added.) Indeed, the sensor 11 determines the oxygen concentration of the gas. From paragraph [0031] of the specification of the instant application as originally filed, nitrogen gas is pumped into the measurement circuit 2 so that foreign gas can be completely chased out, "wherein the 6-way valve 7 switches the switch-over branch 3 into the measurement circuit 2." (Emphasis added.) A valve 9 is closed such that the introduced gas quantity

circulates in the closed measurement circuit 2 with the help of a pump 10.

The oxygen content of the circulated gas in the reaction circuit 1 of the present invention of the instant application changes on account of the material accommodated in the measurement cell 6. The reaction gas containing oxygen circulates in the closed reaction circuit 1, and the OSI-material in the measurement cell 6 reacts with the oxygen, thereby changing the oxygen content of the reaction gas. The sample loop 4 is switched from the reaction circuit 1 into the measurement circuit 2 via valves 7 at certain time intervals for determining the oxygen concentration. By way of switching the valve 7, a defined volume part is conveyed from the reaction circuit 1 into the measurement circuit 2, and the oxygen concentration in the defined volume part is detected with the help of the oxygen-sensitive sensor 11. As such, a characteristic curve of the uptake of oxygen of the OSI-material in the measurement cell over time can be established, and a correlation between colour change of the measurement cell and the oxygen uptake may be made. In view of the above, the teachings of Naatz and Yang, alone or in combination, do not result in the present invention as presently claimed in amended independent claim 10 of the instant application. As such, Applicant submits that amended independent claim 10 is, therefore, patentable. As claims 11-15 and 17-19 depend from amended independent claim 10, and recite additional patentable features, the claims 11-15 and 17-19 are, therefore, likewise patentable.

At numbered parts 14-15 of the Office Action, the Examiner has rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Naatz in view of Yang in further view of Busch et al. (U.S. Pat. No. 5,473,162) (hereinafter referred to as "Busch"). The patentability of amended independent claim 10 over the teachings of Naatz and Yang, alone or in combination, was discussed above. Applicant submits that the teachings of Busch do not disclose or suggest a closed reaction circuit and a closed measurement circuit, wherein a sample loop may be switched from the closed reaction circuit to the closed measurement circuit and from the measurement circuit to the reaction circuit, the sensor, and the measurement cell for receiving an OSI-material as presently claimed in amended independent claim 10 of the instant application. As such, Busch does not cure the aforementioned deficiencies of Naatz and Yang. As dependent claim 16 depends from amended independent claim 10, and recites additional patentable features, the subject dependent claim is, therefore, patentable.

In view of the above, Applicant respectfully requests that the Examiner's §103 rejections be withdrawn.

Conclusion:

In view of the foregoing, Applicant submits that the instant claims are in condition for allowance. Early and favorable action is earnestly solicited. The fee for the RCE is included herein. In the event there are any fees due and owing in connection with this matter, please charge same to our Deposit Account No. 11-0223.

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Respectfully submitted,

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